

59-586182.0002

**SEMI-ANNUAL DATA SUBMITTAL 2012-1
PQGWWP REPORT
JANUARY THROUGH JUNE 2012
BROADWAY AND DOBSON VOLUNTARY
REMEDIATION PROGRAM SITE
VRP SITE No. 502389
PQGWWP No. 59-586182.0002**

**FOR
FREESCALE SEMICONDUCTOR, INC.**

July 2012

**CLEAR
CREEK
ASSOCIATES**





AUG 14 2012

July 30, 2012

Ms. Nichole Osuch
Voluntary Remediation Program
Arizona Department of Environmental Quality
1110 W. Washington Street
Phoenix, Arizona 85007

Mr. David Christiana
Water Quality Unit
Arizona Department of Water Resources
3550 N. Central Avenue
Phoenix, Arizona 85012

Semi-Annual Data Submittal 2012-1
PQGWWP Report
January through June 2012
Broadway and Dobson Site, Mesa
Arizona
for Freescale Semiconductor, Inc.

Dear Ms. Osuch and Mr. Christiana:

Enclosed are the Semi-Annual Progress and PQGWWP Reports for the period January through June 2012 for the Broadway and Dobson Site groundwater monitoring/remediation program. This work was performed in accordance with the terms of PQGWWP No. 59-586182.0002 and ADEQ's Voluntary Remediation Program. This submittal contains data collected during the January through June 2012 sampling period. Also transmitted is a CD of the report with the laboratory reports.

Please call if you have any questions.

Sincerely,



Jenni McCall
Strategic Programs Manager

cc: Todd Cruse - Clear Creek Associates



*Practical Solutions
in Groundwater Science*

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July 30, 2012

Freescall Semiconductor, Inc.
2100 E. Elliot Road
M/D EL-614
Tempe, AZ 85284

Attn: Ms. Jenn McCall
Strategic Programs Manager

Re: Semi-Annual Data Submittal 2012-1
PQGWWP Report
January through June 2012
Broadway and Dobson Site
for Freescall Semiconductor, Inc.
CCA Job No. 005097-15

Dear Jenn:

Enclosed is one (1) copy of the Semi-Annual Data Submittal 2012-1 and the PQGWWP Report for the Broadway and Dobson Site along with one (1) copy of the laboratory data and a CD of the final report. This report provides data obtained during the January through June 2012 groundwater sampling interval. Copies of the Semi-Annual Data Submittal accompanied by a CD of the laboratory reports are being transmitted directly to ADEQ and ADWR.

Please call if you have any questions.

Sincerely,

CLEAR CREEK ASSOCIATES, PLC

A handwritten signature in black ink, appearing to read "Sharen R. Meade".

Sharen R. Meade
Project Manager

A handwritten signature in black ink, appearing to read "Leighton T. Cruse".

Leighton T. Cruse, RG
Senior Hydrogeologist

**SEMI-ANNUAL DATA SUBMITTAL 2012-1
PQGWWP REPORT
JANUARY THROUGH JUNE 2012
BROADWAY AND DOBSON SITE
VRP SITE No. 502389
PQGWWP No. 59-586182.0002**

**FOR
FREESCALE SEMICONDUCTOR, INC.**

July 2012



EXPIRES 6/30/2014

**CLEAR
CREEK
ASSOCIATES**

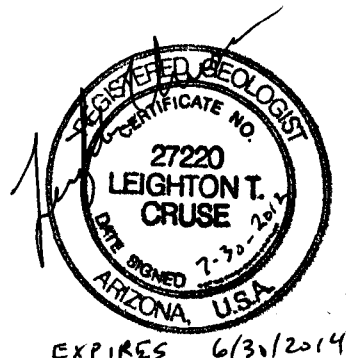
SEMI-ANNUAL DATA SUBMITTAL 2012-1 PQGWWP REPORT BROADWAY AND DOBSON SITE

TABLE OF CONTENTS

- 1.0 ACTIVITIES CONDUCTED DURING THE CURRENT REPORTING PERIOD
- 2.0 FIELD AND LABORATORY DATA COLLECTED DURING THE CURRENT REPORTING PERIOD
- 3.0 GROUNDWATER WITHDRAWAL VOLUMES
- 4.0 PLANNED ACTIVITIES FOR NEXT REPORTING PERIOD

TABLE NO.	TABLE NAME
TABLE 1	GROUNDWATER MONITORING WELL AND SAMPLING SCHEDULE, BROADWAY AND DOBSON SITE
TABLE 2	STATIC WATER LEVEL DATA – FIRST AND SECOND QUARTERS 2012
TABLE 3	WATER QUALITY FIELD PARAMETERS – FIRST AND SECOND QUARTERS 2012
TABLE 4	ORGANIC WATER QUALITY ANALYTICAL RESULTS – FIRST AND SECOND QUARTERS 2012
TABLE 5	TOTALIZED GROUNDWATER WITHDRAWAL – JANUARY THROUGH JUNE 2012

FIGURE NO.	FIGURE NAME
FIGURE 1	WELL LOCATION MAP
FIGURE 2	GROUNDWATER ELEVATION CONTOUR MAP, MAY 2012
FIGURE 3	PCE CONCENTRATION IN GROUNDWATER, MAY 2012



**SEMI-ANNUAL DATA SUBMITTAL 2012-1
PQGWWP REPORT
JANUARY THROUGH JUNE 2012
BROADWAY AND DOBSON VRP SITE**

This progress report is submitted for the Broadway and Dobson Voluntary Remediation Program (VRP) site (formerly the Motorola Mesa facility) in Mesa, Arizona in accordance with the Groundwater Sampling Plan dated March 27, 2007 and updated in the July 2008 Semi-Annual Report (Approved Plan) and the Poor Quality Groundwater Withdrawal Permit (PQGWWP) No. 59-586182.0002. The site is included in the Arizona Department of Environmental Quality's (ADEQ) Voluntary Remediation Program. This site has been monitored and remediated by Freescale Semiconductor, Inc. and previously by Motorola, Inc. since 1985. In December 2004, Motorola spun off its semiconductor sector into a new independent company. The new company, Freescale Semiconductor, Inc., agreed to implement the groundwater remediation project at the Broadway and Dobson site on behalf of Motorola. This report includes a description of groundwater monitoring and remediation activities conducted during the semi-annual reporting period (January through June 2012) and a discussion of projected activities for the next semi-annual reporting period (July through December 2012).

The Broadway and Dobson site is located on the northwest corner of Broadway Road and Dobson Road in Mesa, Arizona. After the facility was sold, the buildings were demolished and the site redeveloped into an industrial park. After closure of the Motorola facility, groundwater remediation and sampling was suspended until the new groundwater treatment plant was constructed in coordination with the site redevelopment activities. Operations at the new treatment plant commenced in February 2007.

1.0 ACTIVITIES CONDUCTED DURING THE CURRENT REPORTING PERIOD

Activities at the Broadway and Dobson site in the first and second quarters of 2012 included groundwater sampling and measuring water levels. Figure 1 shows the locations of the monitoring well network for the site.

To evaluate the impact of shutting down the system on water quality sample results, the extraction wells were shut off in mid-December 2011 and allowed to remain off for approximately two months. Wells MW-04, MW-29, MW-30 and MW-32 were sampled in February 2012 after the wells were

turned back on. In May of 2012, water level monitoring and groundwater sampling were conducted as part of the semi-annual monitoring for the site according to the approved sampling plan. After the May sampling the two wells remained pumping until July 1st when they were again taken offline to evaluate how concentrations are impacted by changes to the groundwater flow system. The pumps will remain off for approximately three months. Additional samples will be collected when the pumps are turned back on in October. If the PCE concentrations remain below 5 ug/L the wells may be left off until the November sampling.

The plant was also shut down on May 1, 2012 due to a pipe leak in a valve vault. The leaking pipe was repaired and the facility was restarted on May 3rd.

In a letter to ADEQ in October 2011, Freescale proposed abandoning monitoring wells MW-11, MW-12, MW-15, MW-20, MW-21, MW23, and MW-24 as they are no longer needed for monitoring. ADEQ approved the proposed abandonments in a letter dated October 13, 2011. Wells MW-15, MW-20, MW-23 and MW-24 were abandoned in January 2012 in accordance with Arizona Department of Water Resources (ADWR) Article 8, Rule R12-15-816. The remaining wells (MW-11, MW-12, and MW-21) will be abandoned in the future.

2.0 FIELD AND LABORATORY DATA COLLECTED DURING THE CURRENT REPORTING PERIOD

This section describes the groundwater sampling and data collection activities conducted from January through June 2012 as part of an ongoing groundwater monitoring program for the Broadway and Dobson site in Mesa, Arizona. Groundwater monitoring activities conducted during this reporting period were completed in accordance with the Approved Plan for the Broadway and Dobson Site, VRP Site 502389. Water quality sampling for the second quarter of 2012 included all the wells scheduled for sampling per the Approved Plan (see Table 1).

The locations of the monitor wells for the Broadway and Dobson site are shown on Figure 1. During this reporting period a total of 21 samples (19 field originals and 2 field duplicate) were collected from these monitoring wells and analyzed for volatile organic compounds (VOCs). Four non-scheduled samples were collected in February as part of the shutdown evaluation. The second quarter water level measurement round was conducted in May 2012. The water quality data collected during the first and second quarters of 2012 are presented on Table 2. Groundwater level elevations for the second quarter 2012 are also shown on Figure 2. Groundwater samples were collected in general accordance with the sample collection procedures outlined in the Groundwater Sampling Plan. Conductivity, pH, and temperature were measured in the field during evacuation.

These water quality field parameters are listed for each well on Table 3. The SRP well 24.4E-1.5N was not pumping on May 1, 2012, when water level measurements were collected.

The February water quality samples were analyzed by TestAmerica Laboratories, Inc and the May samples were analyzed by Accutest Laboratories, Inc. for halogenated volatile organic compounds (VOCs) using EPA Method 8260B in accordance with the Quality Assurance Project Plan. A short list of analytes known or suspected to occur in the area was used for EPA Method 8260B and is designated as SW8260B. The VOC analytes include: 1,1,1-Trichloroethane (TCA), 1,1-Dichloroethene (DCE), 1,2-Dichloroethane (1,2-DCA), cis-1,2-Dichloroethene (c-1,2-DCE), trans-1,2-Dichloroethene (t-1,2-DCE), Tetrachloroethene (PCE), Trichloroethene (TCE) and Vinyl Chloride (VC). Water quality analytical results for each sample collected during the January through June 2012 reporting period are presented on Table 4. Only two samples exceeded the MCL of 5 ug/L for PCE, the February sample for MW-04 (8.1 ug/L) and the May sample from MW-17 (7.2 ug/L). The sample from well MW-17 was also the only sample detected above the MCL of 5 ug/L for TCE (6.9 ug/L). The PCE results from monitor wells sampled in the first and second quarters of 2012 are shown on Figure 3.

A verification of the analytical data collected during the first and second quarters was performed by Clear Creek Associates. The verification of the data included the review of chain-of-custody records, sample receipt records, sample holding times, trip blank results, field duplicate sample results, laboratory matrix spike/matrix spike duplicate results, and laboratory reagent blank results. All of the data are considered usable.

Extraction wells MW-04 and MW-32 and monitoring wells MW-29 and MW-30 were sampled in February after the system had been shut down for approximately two months. A comparison of the data collected in February to the samples collected in May during the scheduled sampling event did not show a significant difference in concentration with the exception of MW-04 which was 8.1 ug/L in February and 3.0 ug/L in May. This drop in concentration in samples collected after the well was pumping for some time may be because it is pulling in water from further away where concentrations are lower or non-detect.

3.0 GROUNDWATER WITHDRAWAL VOLUMES

In the first and second quarters of 2012, approximately 133 acre-feet (43 million gallons) of groundwater were extracted. This water was treated at the treatment plant and delivered via pipeline to the City of Mesa. The volumes extracted at individual wells and the total volumes are summarized on Table 5. In general, the extraction was conducted 24 hours a day, 7 days a week

except for shutdowns for routine maintenance or evaluating the system. Shutdowns of the treatment plant were described in Section 1.0.

4.0 PLANNED ACTIVITIES FOR NEXT REPORTING PERIOD

During the next reporting period (July through December 2012), groundwater samples and water level measurements will be collected in November per the sample schedule. Additional samples will be collected in October to evaluate how turning off the extraction wells for three months affects concentrations in the wells. The next semi-annual report, which summarizes the data collected, will be prepared and delivered to the agencies in January, 2013.

TABLES

Table 1
Groundwater Monitoring Well and Sampling Schedule
Broadway and Dobson Site

Well ID	ADWR Well Registration No.	Northing	Easting	Measurement Point Elevation (ft amsl)	Perforation Interval (ft bgs)	Purge Method			Groundwater Sampling Frequency		Hydraulic Monitoring
						Purge to Steel Pipe	Purge to Portable Tank	PDB Samplers	Semi-Annual (November)	Annual (May)	
MW-02R	55-208083	876116.34	511639.67	1205.36	130-175			X	X	X	X
MW-03R	55-208141	875871.81	510643.87	1202.20	135-175	X				X	X
MW-04	55-531984	875845.60	511571.58	1204.09	110-178	X			X	X	X
MW-05	55-506681	875853.38	511008.43	1202.61	115-145	X				X	X
MW-06	55-506997	876754.49	510807.14	1204.21	135-175		X				X
MW-07	55-511757	875564.24	511440.63	1206.77	105-152			X	X	X	X
MW-08	55-531983	875857.28	512210.20	1205.73	133-180	X				X	X
MW-09	55-514683	874417.38	510478.32	1200.95	97-146			X	X	X	X
MW-10	55-514062	874504.52	511724.53	1203.63	79-169			X		X	X
MW-11	55-514872	875865.41	512921.61	1212.11	93-173						X
MW-12	55-515127	876942.25	512987.28	1213.85	96-176						X
MW-15	55-516145	873096.98	513329.31	1205.57	93-166						
MW-17	55-518325	876463.75	511959.97	1210.29	98-170			X	X	X	X
MW-20	55-518553	874479.10	512997.35	1207.09	111-171						
MW-22	55-520481	877892.09	510404.66	1206.03	110-170						X
MW-23	55-526810	871822.01	512706.44	1198.79	111-181						
MW-26	55-536309	873027.15	511101.05	1200.20	105-130			X	X	X	X
MW-29	55-203001	873305.37	510405.25	1199.97	110-135		X		X	X	X
MW-30	55-205701	873522.55	510405.03	1199.83	108-128		X		X	X	X
MW-32	55-207841	873378.39	510404.48	1196.05	100-200	X			X	X	X
MW-33	55-207880	873229.59	510082.03	1198.39	100-130		X		X	X	X

Table 2
Static Water Level Data
First and Second Quarters 2012

Semi-Annual Data Submittal 2012-1
PQGWWP Report
Broadway and Dobson Site
January through June 2012

Site ID	Date	MP Elevation feet Above MSL	Depth to Water	Water Elevation feet Above MSL
MW-02R	5/1/2012	1,205.36	78.28	1,127.08
MW-03R	5/4/2012	1,202.20	75.86	1,126.34
MW-04*	2/16/2012	1,204.09	77.51	1,126.58
MW-04*	5/1/2012	1,204.09	78.26	1,125.83
MW-05	5/7/2012	1,202.61	76.21	1,126.40
MW-05	5/9/2012	1,202.61	79.19	1,123.42
MW-06	5/1/2012	1,204.21	76.91	1,127.30
MW-06	5/3/2012	1,204.21	76.91	1,127.30
MW-07	5/1/2012	1,206.77	79.96	1,126.81
MW-08	5/1/2012	1,205.73	78.81	1,126.92
MW-08	5/4/2012	1,205.73	79.04	1,126.69
MW-09	5/1/2012	1,200.95	74.74	1,126.21
MW-10	5/1/2012	1,203.63	76.93	1,126.70
MW-11	5/1/2012	1,212.11	84.81	1,127.30
MW-12	5/1/2012	1,213.85	85.76	1,128.09
MW-17	5/1/2012	1,212.39	84.72	1,127.67
MW-22	5/1/2012	1,206.03	78.01	1,128.02
MW-26	5/1/2012	1,200.20	75.11	1,125.09
MW-29	2/16/2012	1,199.97	75.38	1,124.59
MW-29	5/1/2012	1,199.97	75.33	1,124.64
MW-29	5/3/2012	1,199.97	76.94	1,123.03
MW-30	2/16/2012	1,199.83	75.02	1,124.81
MW-30	5/1/2012	1,199.83	75.09	1,124.74
MW-32*	2/16/2012	1,196.05	82.50	1,113.55
MW-32*	5/1/2012	1,196.05	71.59	1,124.46
MW-33	5/1/2012	1,198.39	74.23	1,124.16
MW-33	5/3/2012	1,198.39	78.37	1,120.02

Notes:

* - Extraction Well

Table 3
Water Quality Field Parameters
First and Second Quarters 2012

Semi-Annual Data Submittal 2012-1
PQGWWP Report
Broadway and Dobson Site
January through June 2012

<u>Site ID</u>	<u>Sample Date</u>	<u>Field pH</u> <u>(S.U.)</u>	<u>Conductivity</u> <u>(µmhos/cm)</u>	<u>Temperature</u> <u>(Celsius)</u>
MW-03R	04-May-12	7.51	1690	26.1
MW-04	04-May-12	7.3	2150	29.8
MW-04	16-Feb-12	6.67	1860	20.5
MW-05	09-May-12	7.34	1770	25.2
MW-06	03-May-12	7.3	1580	25.5
MW-07	16-May-12	5.26	160	30.7
MW-08	04-May-12	7.43	1800	28.2
MW-09	16-May-12	5.33	80	31.9
MW-10	16-May-12	5.2	120	30.7
MW-17	16-May-12	5.5	1000	28.2
MW-29	03-May-12	7.33	1620	25.2
MW-29	16-Feb-12	7.22	1520	24.6
MW-2R	16-May-12	6.45	680	31.4
MW-30	02-May-12	7.34	1570	26.5
MW-30	16-Feb-12	7.24	1580	24.5
MW-32	16-Feb-12	6.87	1810	20.2
MW-32	04-May-12	7.43	1760	28
MW-33	03-May-12	7.33	830	24.7

Notes:

SU - Standard Units
µmhos/cm - micromhos per centimeter

Table 4
Organic Water Quality Analytical Results
First and Second Quarters 2012

Site ID	Round	Date	Code	1,1,1-TCA	1,1-DCA	1,1-DCE	1,2-DCA	c-1,2-DCE	PCE	TCE	t-1,2-DCE	VC
MW-02R	12Q2	05/16/12	P0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MW-03R	12Q2	05/04/12	P0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MW-04	12Q1	02/16/12	P0	<0.5	<0.5	<0.5	<0.5	<0.5	8.1	3.4	<0.5	<0.5
MW-04	12Q2	05/04/12	P0	<0.5	<0.5	<0.5	<0.5	<0.5	3	1.4	<0.5	<0.5
MW-05	12Q2	05/09/12	P0	<0.5	<0.5	<0.5	<0.5	<0.5	3.2	1.5	<0.5	<0.5
MW-06	12Q2	05/03/12	P0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MW-07	12Q2	05/16/12	P0	<0.5	<0.5	<0.5	<0.5	<0.5	3.7	2.1	<0.5	<0.5
MW-08	12Q2	05/04/12	P0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MW-08	12Q2	05/04/12	D1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MW-09	12Q2	05/16/12	P0	<0.5	<0.5	<0.5	<0.5	<0.5	1.8	1.6	<0.5	<0.5
MW-10	12Q2	05/16/12	P0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MW-17	12Q2	05/16/12	P0	<0.5	<0.5	<0.5	<0.5	<0.5	7.2	6.9	<0.5	<0.5
MW-26	12Q2	05/16/12	P0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MW-29	12Q1	02/16/12	P0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MW-29	12Q2	05/03/12	P0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MW-30	12Q1	02/16/12	P0	<0.5	<0.5	<0.5	<0.5	<0.5	0.54	0.62	<0.5	<0.5
MW-30	12Q2	05/02/12	P0	<0.5	<0.5	<0.5	<0.5	<0.5	0.61	0.56	<0.5	<0.5
MW-32	12Q1	02/16/12	P0	<0.5	<0.5	<0.5	<0.5	<0.5	1.2	0.59	<0.5	<0.5
MW-32	12Q2	05/04/12	P0	<0.5	<0.5	<0.5	<0.5	<0.5	1.6	0.88	<0.5	<0.5
MW-33	12Q2	05/03/12	P0	<0.5	<0.5	<0.5	<0.5	<0.5	4.8	1.7	<0.5	<0.5
MW-33	12Q2	05/03/12	D1	<0.5	<0.5	<0.5	<0.5	<0.5	4.9	1.7	<0.5	<0.5

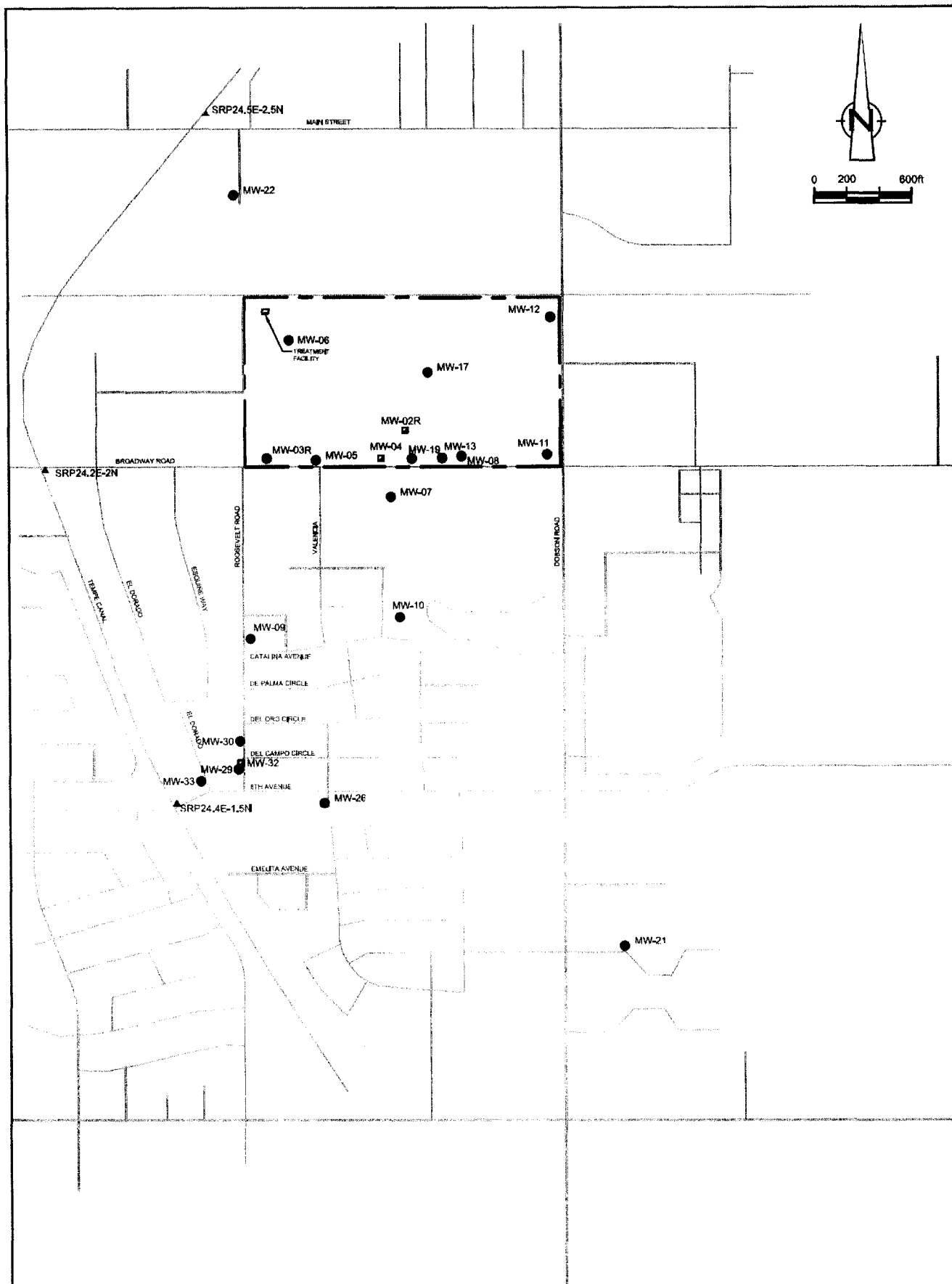
Notes:

Concentrations are in ug/L.
P0 - Primary sample D1 - Duplicate sample
Concentrations above the MCL are Bold

Table 5
Totalized Groundwater Withdrawal
January through June 2012

	January (gallons)	February (gallons)	March (gallons)	April (gallons)	May (gallons)	June (gallons)	July (gallons)	August (gallons)	September (gallons)	October (gallons)	November (gallons)	December (gallons)	Total (gallons)	Total (acre-feet)
Well MW-04	0	697,763	4,978,027	5,157,261	4,860,769	5,045,310							20,739,131	63.65
MW-32	0	3,895,245	5,264,981	4,617,715	4,605,247	4,366,690							22,659,877	69.55
Month Total	0	4,593,008	10,243,008	9,774,976	9,466,016	9,412,000	0	0	0	0	0	0		
Quarterly Total		1st Quarter			2nd Quarter	28,652,992		3rd Quarter	0		4th Quarter	0	43,399,008	133.20

FIGURES



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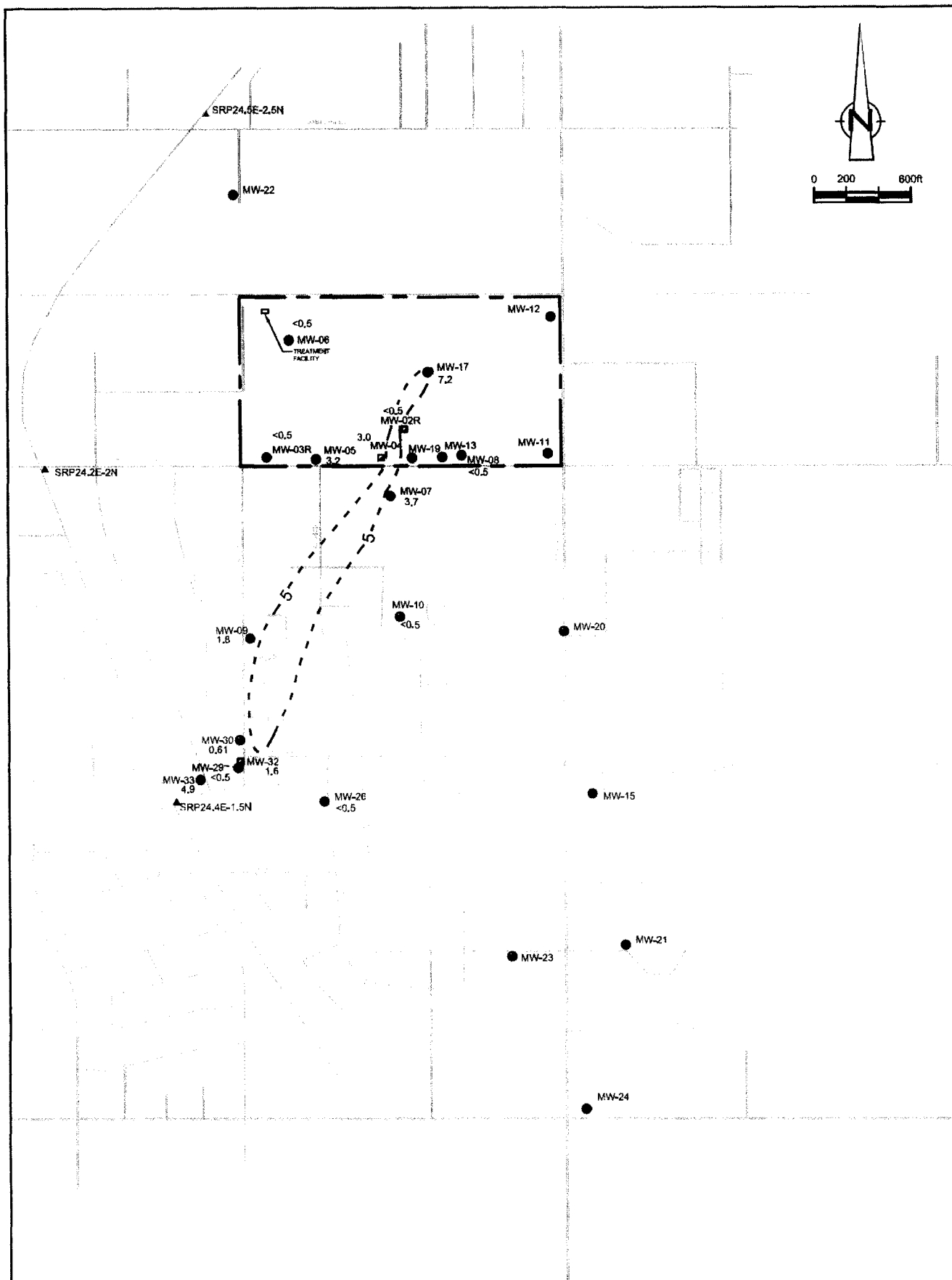
- | | | |
|---|--------------------------|-----------------|
|  | MW-04 | EXTRACTION WELL |
|  | MW-01 | MONITOR WELL |
|  | SRP24.4E-1.5N | SRP WELL |
|  | Broadway and Dobson Site | |

FIGURE 1
Well Location Map

CLEAR CREEK ASSOCIATES 

FREESCALE SEMICONDUCTOR INC
July 2012



LEGEND

- MW-08
<0.5
- NAME OF WELL
PCE CONCENTRATION (ug/L)
- 5---
PCE CONCENTRATION CONTOUR (ln ug/L)
- WELL TYPE**
- ▣ EXTRACTION WELL
- MONITOR WELL
- ▲ SRP WELL



Broadway and Dobson Site

FIGURE 3

PCE Concentration in Groundwater
May 2012

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SEMICONDUCTOR INC
July 2012

**SEMI-ANNUAL DATA SUBMITTAL 2012-1
BROADWAY AND DOBSON SITE**

**FOR
FREESCALE SEMICONDUCTOR, INC.**

LABORATORY REPORTS ON CD

IN GROUNDWATER PERMITS FILE

JCL